

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Revision Date 04.01.2018

Version 9.0

**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Catalogue No. 101745  
Product name Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd  
Spectroquant®

Cd-1

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses Reagent for analysis  
For additional information on uses please refer to the Merck Chemicals portal ([www.merckgroup.com](http://www.merckgroup.com)).

**1.3 Details of the supplier of the safety data sheet**

Company Merck KGaA \* 64271 Darmstadt \* Germany \* Phone:+49 6151 72-0  
Responsible Department LS-QHC \* e-mail: [prodsafe@merckgroup.com](mailto:prodsafe@merckgroup.com)

**1.4 Emergency telephone number** Please contact the regional company representation in your country.

**SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Eye irritation, Category 2, H319

Chronic aquatic toxicity, Category 3, H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 Label elements****Labelling.(REGULATION (EC) No 1272/2008)***Hazard pictograms*

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## *Signal word*

Warning

## *Hazard statements*

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects.

## *Precautionary statements*

Prevention

P273 Avoid release to the environment.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

## **Reduced labelling (≤125 ml)**

### *Hazard pictograms*



### *Signal word*

Warning

### *Hazard statements*

H412 Harmful to aquatic life with long lasting effects.

## **2.3 Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Chemical nature Aqueous solution of inorganic and organic compounds.

### **3.1 Substance**

Not applicable

### **3.2 Mixture**

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## Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical name (Concentration)*

CAS-No. Registration number Classification

Triton-X-100 ( $\geq 1\%$  -  $< 2,5\%$ )

9002-93-1 \*)

Acute toxicity, Category 4, H302

Skin irritation, Category 2, H315

Serious eye damage, Category 1, H318

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

M-Factor: 10

disodium tetraborate ( $\geq 1\%$  -  $< 3\%$ )

*PBT/vPvB: Not applicable for inorganic substances*

1330-43-4 01-2119490790-32-

XXXX

Eye irritation, Category 2, H319

Reproductive toxicity, Category 1B, H360FD

\*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

### 4.2 Most important symptoms and effects, both acute and delayed

The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders. irritant effects, Dermatitis, Vomiting, Risk of corneal clouding., Drying-out effect resulting in rough and chapped skin.

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## 4.3 Indication of any immediate medical attention and special treatment needed

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

#### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapours.

### 5.3 Advice for firefighters

#### *Special protective equipment for firefighters*

In the event of fire, wear self-contained breathing apparatus.

#### *Further information*

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### 6.2 Environmental precautions

Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® OH<sup>-</sup>, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

Indications about waste treatment see section 13.

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

#### *Advice on safe handling*

Observe label precautions.

#### *Hygiene measures*

Change contaminated clothing. Wash hands after working with substance.

### 7.2 Conditions for safe storage, including any incompatibilities

#### *Storage conditions*

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorised persons.

Recommended storage temperature see product label.

The data applies to the entire pack.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Derived No Effect Level (DNEL)

##### *disodium tetraborate (1330-43-4)*

Worker DNEL, acute	Local effects	inhalation	2,52 mg/m <sup>3</sup> (Expressed as Boron)
Worker DNEL, longterm	Systemic effects	dermal	68 mg/kg Body weight (Expressed as Boron)
Worker DNEL, longterm	Systemic effects	inhalation	1,45 mg/m <sup>3</sup> (Expressed as Boron)
Worker DNEL, longterm	Local effects	inhalation	2,52 mg/m <sup>3</sup> (Expressed as Boron)
Consumer DNEL, acute	Systemic effects	oral	0,17 mg/kg Body weight (Expressed as Boron)
Consumer DNEL, acute	Local effects	inhalation	2,52 mg/m <sup>3</sup> (Expressed as Boron)
Consumer DNEL, longterm	Systemic effects	dermal	34,3 mg/kg Body weight (Expressed as Boron)
Consumer DNEL, longterm	Systemic effects	inhalation	0,73 mg/m <sup>3</sup> (Expressed as Boron)
Consumer DNEL, longterm	Systemic effects	oral	0,17 mg/kg Body weight (Expressed as Boron)
Consumer DNEL, longterm	Local effects	inhalation	2,52 mg/m <sup>3</sup> (Expressed as Boron)

##### *disodium tetraborate (1330-43-4)*

PNEC Fresh water	2,9 mg/l (Expressed as Boron)
PNEC Marine water	2,9 mg/l (Expressed as Boron)
PNEC Aquatic intermittent release	13,7 mg/l (Expressed as Boron)

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PNEC Sewage treatment plant	10 mg/l (Expressed as Boron)
PNEC Soil	5,7 mg/kg (Expressed as Boron)

## 8.2 Exposure controls

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

### Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

#### *Other protective equipment*

protective clothing

#### *Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: filter ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### Environmental exposure controls

Do not let product enter drains.

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 9,5 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	ca. 1,016 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	No information available.
Partition coefficient: n- octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.

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Explosive properties Not classified as explosive.

Oxidizing properties none

## 9.2 Other data

none

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

See section 10.3

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

The generally known reaction partners of water.

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

no information available

### 10.6 Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

#### *Acute oral toxicity*

Acute toxicity estimate: > 2.000 mg/kg

Calculation method

Symptoms: Vomiting, Risk of aspiration upon vomiting., Pulmonary failure possible after aspiration of vomit., Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

#### *Acute inhalation toxicity*

Symptoms: Possible symptoms:, mucosal irritations

#### *Acute dermal toxicity*

This information is not available.

#### *Skin irritation*

slight irritation

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## *Eye irritation*

Mixture causes serious eye irritation. Risk of corneal clouding.

## *Sensitisation*

This information is not available.

## *Germ cell mutagenicity*

This information is not available.

## *Carcinogenicity*

This information is not available.

## *Reproductive toxicity*

This information is not available.

## *Teratogenicity*

This information is not available.

## *Specific target organ toxicity - single exposure*

This information is not available.

## *Specific target organ toxicity - repeated exposure*

This information is not available.

## *Aspiration hazard*

This information is not available.

## 11.2 Further information

The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders.

Absorption via:

Gastrointestinal tract, Mucous membranes

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## Components

### *Triton-X-100*

#### *Acute oral toxicity*

LD50 Rat: 1.900 - 5.000 mg/kg (External MSDS) The value is given in analogy to the following substances:

#### *Acute dermal toxicity*

LD50 Rabbit: > 3.000 mg/kg (External MSDS) The value is given in analogy to the following substances:

#### *Skin irritation*

Rabbit

Result: irritating

OECD Test Guideline 404

The value is given in analogy to the following substances:

#### *Sensitisation*

Sensitisation test: human

Result: negative

(External MSDS) The value is given in analogy to the following substances:

#### *Germ cell mutagenicity*

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*Genotoxicity in vitro*  
Mutagenicity (mammal cell test):  
Mouse lymphoma test  
Result: negative  
(Lit.)

## *disodium tetraborate*

*Acute oral toxicity*  
LD50 Rat: > 2.500 mg/kg  
OECD Test Guideline 401

*Acute inhalation toxicity*  
LC50 Rat: > 2,04 mg/l; 4 h ; dust/mist The value is given in analogy to the following substances:  
OECD Test Guideline 403

*Acute dermal toxicity*  
LD50 Rabbit: > 2.000 mg/kg (ECHA) The value is given in analogy to the following substances:

*Skin irritation*  
Rabbit  
Result: No irritation  
(ECHA) The value is given in analogy to the following substances:

*Germ cell mutagenicity*  
*Genotoxicity in vitro*  
Ames test  
Result: negative  
(IUCLID)

*Reproductive toxicity*  
No substantiated information from toxicological studies available.

*Teratogenicity*  
No substantiated information from toxicological studies available.

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## SECTION 12. Ecological information

### Mixture

#### 12.1 Toxicity

No information available.

#### 12.2 Persistence and degradability

No information available.

#### 12.3 Bioaccumulative potential

No information available.

#### 12.4 Mobility in soil

No information available.

#### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

#### 12.6 Other adverse effects

Discharge into the environment must be avoided.

### Components

*Triton-X-100*

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#### *Toxicity to fish*

semi-static test LC50 *Leuciscus idus* (Golden orfe): 0,26 mg/l; 96 h

Analytical monitoring: yes

OECD Test Guideline 203 The value is given in analogy to the following substances:

#### *Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): 0,011 mg/l; 48 h (ECOTOX Database) The value is given in analogy to the following substances:

#### *Toxicity to algae*

static test EC50 *Pseudokirchneriella subcapitata* (green algae): 1,9 mg/l; 96 h (ECHA) The value is given in analogy to the following substances:

#### *Toxicity to fish (Chronic toxicity)*

flow-through test *Danio rerio* (zebra fish): 0,012 mg/l

Analytical monitoring: yes

OECD Test Guideline 210 The value is given in analogy to the following substances:

#### *Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)*

semi-static test NOEC *Daphnia magna* (Water flea): 0,03 mg/l; 21 d

Analytical monitoring: yes

OECD Test Guideline 202 The value is given in analogy to the following substances:

#### *Biodegradability*

22 %; 28 d; aerobic

OECD Test Guideline 301C

The value is given in analogy to the following substances:

Not readily biodegradable.

#### *M-Factor*

10

### *disodium tetraborate*

#### *Toxicity to daphnia and other aquatic invertebrates*

EC5 *E. sulcatum*: 1,3 mg/l; 72 h (IUCLID)

#### *Toxicity to algae*

IC50 *Desmodesmus subspicatus* (green algae): 158 mg/l; 96 h (IUCLID)

#### *Toxicity to bacteria*

EC0 *Pseudomonas putida*: 15,8 mg/l; 16 h (IUCLID)

#### *Biodegradability*

The methods for determining the biological degradability are not applicable to inorganic substances.

#### *Partition coefficient: n-octanol/water*

log Pow: -1,53

Not applicable

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PBT/vPvB: Not applicable for inorganic substances

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

### Sea transport (IMDG)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EmS	F-A S-P

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

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THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

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## SECTION 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### *EU regulations*

Major Accident Hazard 96/82/EC  
Legislation Dangerous for the environment  
9b  
Quantity 1: 200 t  
Quantity 2: 500 t  
  
SEVESO III  
Not applicable

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 59 above the respective regulatory concentration limit of > 0.1 % (w/w).  
Contains: disodium tetraborate  
Triton-X-100

#### *National legislation*

Storage class 3

The data applies to the entire pack.

### 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

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## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H360FD	May damage fertility. May damage the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

### Training advice

Provide adequate information, instruction and training for operators.

### Labelling

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects.

*Precautionary statements*

Prevention

P273 Avoid release to the environment.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

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lenses, if present and easy to do. Continue rinsing.

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

## Regional representation

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

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**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Catalogue No. 101745  
Product name Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd  
Spectroquant®

Cd-2

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses Reagent for analysis  
For additional information on uses please refer to the Merck Chemicals portal ([www.merckgroup.com](http://www.merckgroup.com)).

**1.3 Details of the supplier of the safety data sheet**

Company Merck KGaA \* 64271 Darmstadt \* Germany \* Phone:+49 6151 72-0  
Responsible Department LS-QHC \* e-mail: [prodsafe@merckgroup.com](mailto:prodsafe@merckgroup.com)

**1.4 Emergency telephone number** Please contact the regional company representation in your country.

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**SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Flammable liquid, Category 3, H226

Acute toxicity, Category 4, Inhalation, H332

Acute toxicity, Category 4, Dermal, H312

Eye irritation, Category 2, H319

Reproductive toxicity, Category 1B, H360D

For the full text of the H-Statements mentioned in this Section, see Section 16.



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## 2.2 Label elements

### Labelling.(REGULATION (EC) No 1272/2008)

#### *Hazard pictograms*



#### *Signal word*

Danger

#### *Hazard statements*

H360D May damage the unborn child.  
H226 Flammable liquid and vapour.  
H312 + H332 Harmful in contact with skin or if inhaled.  
H319 Causes serious eye irritation.

#### *Precautionary statements*

##### Prevention

P201 Obtain special instructions before use.  
P210 Keep away from heat.

##### Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Restricted to professional users.

#### **Reduced labelling (≤125 ml)**

#### *Hazard pictograms*



#### *Signal word*

Danger

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Catalogue No. 101745  
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---

#### *Hazard statements*

H360D May damage the unborn child.

#### *Precautionary statements*

P201 Obtain special instructions before use.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Contains: N,N-dimethylformamide

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Chemical nature Mixture of organic compounds

### 3.1 Substance

Not applicable

### 3.2 Mixture

#### **Hazardous components (REGULATION (EC) No 1272/2008)**

##### *Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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N,N-dimethylformamide (>= 50 % - <= 100 % )

*Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.*

68-12-2	01-2119475605-32-	
	XXXX	Flammable liquid, Category 3, H226
		Acute toxicity, Category 4, H332
		Acute toxicity, Category 4, H312
		Eye irritation, Category 2, H319
		Reproductive toxicity, Category 1B, H360D

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

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Catalogue No.	101745
Product name	Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant® Cd-2

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## *General advice*

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

## **4.2 Most important symptoms and effects, both acute and delayed**

irritant effects, Nausea, Vomiting, Headache, Gastrointestinal disturbance, Dizziness, Drowsiness

## **4.3 Indication of any immediate medical attention and special treatment needed**

No information available.

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## **SECTION 5. Firefighting measures**

### **5.1 Extinguishing media**

#### *Suitable extinguishing media*

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **5.2 Special hazards arising from the substance or mixture**

Combustible.

Forms explosive mixtures with air at elevated temperatures.

Vapours are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

nitrogen oxides

### **5.3 Advice for firefighters**

#### *Special protective equipment for firefighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

---

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	101745
Product name	Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant® Cd-2

---

---

## SECTION 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### 6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

Indications about waste treatment see section 13.

---

## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

*Advice on safe handling*

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

*Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

*Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### 7.2 Conditions for safe storage, including any incompatibilities

*Storage conditions*

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorised persons.

Recommended storage temperature see product label.

The data applies to the entire pack.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

---

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---

## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Derived No Effect Level (DNEL)

##### *N,N*-dimethylformamide (68-12-2)

Worker DNEL, longterm	Systemic effects	dermal	3,31 mg/kg Body weight
Worker DNEL, longterm	Systemic effects	inhalation	15 mg/m <sup>3</sup>

#### Predicted No Effect Concentration (PNEC)

##### *N,N*-dimethylformamide (68-12-2)

PNEC Fresh water	30 mg/l
PNEC Marine water	3 mg/l
PNEC Aquatic intermittent release	30 mg/l
PNEC Fresh water sediment	25,05 mg/kg
PNEC Soil	16,24 mg/kg
PNEC Sewage treatment plant	123 mg/l

### 8.2 Exposure controls

#### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

#### Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

##### *Eye/face protection*

Safety glasses

##### *Hand protection*

full contact:

Glove material:	butyl-rubber
Glove thickness:	0,7 mm
Break through time:	> 480 min

splash contact:

Glove material:	Viton (R)
Glove thickness:	0,70 mm
Break through time:	> 240 min

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---

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 890 Vitoject® (splash contact).

This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

#### *Other protective equipment*

Flame retardant antistatic protective clothing.

#### *Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: Filter A-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

#### **Environmental exposure controls**

Do not let product enter drains.

Risk of explosion.

---

## **SECTION 9. Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

Form	liquid
Colour	orange
Odour	characteristic
Odour Threshold	No information available.
pH	No information available.
Melting point	No information available.
Boiling point/boiling range	153 °C at 1.013 hPa (Dimethylformamide)
Flash point	58 °C Method: c.c. (Dimethylformamide)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.

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---

Lower explosion limit	2,2 %(V) (Dimethylformamide)
Upper explosion limit	16 %(V) (Dimethylformamide)
Vapour pressure	3,77 hPa at 20 °C (Dimethylformamide)
Relative vapour density	No information available.
Density	No information available.
Relative density	No information available.
Water solubility	No information available.
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

## 9.2 Other data

Ignition temperature	410 °C (Dimethylformamide)
----------------------	-------------------------------

---

## SECTION 10. Stability and reactivity

### 10.1 Reactivity

Vapour/air-mixtures are explosive at intense warming.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Alkali metals, halogens, halides, Reducing agents, triethylaluminium, nitrates, metallic oxides, nonmetallic oxides, Strong oxidizing agents, Halogenated hydrocarbon, Isocyanates, sodium, Sodium borohydride, hydrides, Oxidizing agents, Oxides of phosphorus

A risk of explosion and/or of toxic gas formation exists with the following substances:

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azides, Bromine, Chlorine, chromium(VI) oxide, potassium permanganate, triethylaluminium, chlorates

Halogenated hydrocarbon, with, Iron

## 10.4 Conditions to avoid

Heating.

## 10.5 Incompatible materials

various plastics, Copper, Copper alloys, Tin

## 10.6 Hazardous decomposition products

in the event of fire: See section 5.

in the event of fire: See section 5.

---

## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

##### *Acute oral toxicity*

Symptoms: Gastrointestinal disturbance, Nausea, Vomiting

##### *Acute inhalation toxicity*

Symptoms: Possible symptoms:., mucosal irritations

##### *Acute dermal toxicity*

This information is not available.

##### *Skin irritation*

This information is not available.

##### *Eye irritation*

Mixture causes serious eye irritation.

##### *Sensitisation*

This information is not available.

##### *Germ cell mutagenicity*

This information is not available.

##### *Carcinogenicity*

This information is not available.

##### *Reproductive toxicity*

This information is not available.

##### *Teratogenicity*

This information is not available.

##### *CMR effects*

Teratogenicity:

May harm the unborn child.

##### *Specific target organ toxicity - single exposure*

This information is not available.

---



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### *Specific target organ toxicity - repeated exposure*

This information is not available.

### *Aspiration hazard*

This information is not available.

## 11.2 Further information

After absorption:

Headache, Dizziness, Drowsiness

Damage to:

gastrointestinal tract, Liver, Kidney

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

## Components

### *N,N-dimethylformamide*

#### *Acute oral toxicity*

LD50 Rat: 3.010 mg/kg

OECD Test Guideline 401

#### *Acute dermal toxicity*

LD50 Rabbit: 1.500 mg/kg (IUCLID)

#### *Skin irritation*

Rabbit

Result: No irritation

(IUCLID)

#### *Eye irritation*

Rabbit

Result: Eye irritation

(IUCLID)

#### *Sensitisation*

Sensitisation test: Guinea pig

Result: negative

(Lit.)

Sensitisation test: Mouse

Result: negative

Method: OECD Test Guideline 406

#### *Repeated dose toxicity*

Rat

male and female

Oral

28 d

daily

NOAEL: 238 mg/kg

LOAEL: 475 mg/kg

OECD Test Guideline 407

Subacute toxicity

#### *Germ cell mutagenicity*

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#### *Genotoxicity in vivo*

Micronucleus test  
Mouse  
male  
Intraperitoneal injection  
Result: negative  
(ECHA)

#### *Genotoxicity in vitro*

Ames test  
Salmonella typhimurium  
Result: negative  
(ECHA)

#### *Carcinogenicity*

Did not show carcinogenic effects in animal experiments. (Lit.)

---

## SECTION 12. Ecological information

### Mixture

#### 12.1 Toxicity

No information available.

#### 12.2 Persistence and degradability

No information available.

#### 12.3 Bioaccumulative potential

No information available.

#### 12.4 Mobility in soil

No information available.

#### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

#### 12.6 Other adverse effects

Discharge into the environment must be avoided.

### Components

#### *N,N-dimethylformamide*

##### *Toxicity to fish*

flow-through test LC50 *Lepomis macrochirus* (Bluegill sunfish): 7.100 mg/l; 96 h  
Analytical monitoring: yes  
US-EPA

##### *Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): 13.100 mg/l; 48 h  
OECD Test Guideline 202

##### *Toxicity to algae*

static test EC50 *Desmodesmus subspicatus* (green algae): > 1.000 mg/l; 72 h  
DIN 38412

##### *Toxicity to bacteria*

static test EC50 *Vibrio fischeri*: 12.300 - 17.500 mg/l; 5 min (External MSDS)

##### *Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)*

semi-static test NOEC *Daphnia magna* (Water flea): 1.500 mg/l; 21 d  
(External MSDS)

---

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---

*Biodegradability*

100 %; 21 d; aerobic  
OECD Test Guideline 301E  
Readily biodegradable

*Biochemical Oxygen Demand (BOD)*

900 mg/g (5 d)  
(Lit.)

*Theoretical oxygen demand (ThOD)*

1.863 mg/g  
(Lit.)

*Partition coefficient: n-octanol/water*

log Pow: -0,85 (25 °C)  
OECD Test Guideline 107  
Bioaccumulation is not expected.

*Bioaccumulation*

Bioconcentration factor (BCF): 0,3 - 1,2  
Cyprinus carpio (Carp); 56 d  
OECD Test Guideline 305C (Does not significantly accumulate in organisms.)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

*Stability in water*

ca.50 d  
reaction with hydroxyl radicals (calculated) (Lit.)

---

## SECTION 13. Disposal considerations

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

---

## SECTION 14. Transport information

**Land transport (ADR/RID)**

<b>14.1 UN number</b>	UN 3316
<b>14.2 Proper shipping name</b>	CHEMICAL KIT
<b>14.3 Class</b>	9
<b>14.4 Packing group</b>	III
<b>14.5 Environmentally hazardous</b>	--
<b>14.6 Special precautions for user</b>	yes
Tunnel restriction code	E

**Inland waterway transport (ADN)**

Not relevant

---

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---

## Air transport (IATA)

14.1 UN number UN 3316  
14.2 Proper shipping name CHEMICAL KIT  
14.3 Class 9  
14.4 Packing group III  
14.5 Environmentally hazardous --  
14.6 Special precautions for user no

## Sea transport (IMDG)

14.1 UN number UN 3316  
14.2 Proper shipping name CHEMICAL KIT  
14.3 Class 9  
14.4 Packing group III  
14.5 Environmentally hazardous --  
14.6 Special precautions for user yes  
EmS F-A S-P

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  
Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

---

## SECTION 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### *EU regulations*

Major Accident Hazard 96/82/EC  
Legislation Directive 96/82/EC does not apply

SEVESO III  
FLAMMABLE LIQUIDS  
P5c  
Quantity 1: 5.000 t  
Quantity 2: 50.000 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

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---

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 59 above the respective regulatory concentration limit of > 0.1 % (w/w).  
Contains: N,N-dimethylformamide

#### *National legislation*

Storage class 3

The data applies to the entire pack.

## 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

---

## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H226 Flammable liquid and vapour.  
H312 Harmful in contact with skin.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H360D May damage the unborn child.

### Training advice

Provide adequate information, instruction and training for operators.

### Labelling

#### *Hazard pictograms*



#### *Signal word*

Danger

---

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Product name	Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant® Cd-2

---

## *Hazard statements*

H226 Flammable liquid and vapour.  
H312 + H332 Harmful in contact with skin or if inhaled.  
H319 Causes serious eye irritation.  
H360 May damage fertility or the unborn child.

## *Precautionary statements*

### Prevention

P201 Obtain special instructions before use.  
P210 Keep away from heat.

### Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

## Further information

Restricted to professional users.

Contains: N,N-dimethylformamide

## **Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

## **Regional representation**

This information is given on the authorised Safety Data Sheet for your country.

---

*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Revision Date 04.01.2018

Version 9.0

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**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Catalogue No.	101745
Product name	Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant®
	Cd-3
REACH Registration Number	01-2119977062-37-xxxx
CAS-No.	62-56-6

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ).
-----------------	---

**1.3 Details of the supplier of the safety data sheet**

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

**1.4 Emergency telephone number** Please contact the regional company representation in your country.

---

**SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Acute toxicity, Category 4, Oral, H302

Carcinogenicity, Category 2, H351

Reproductive toxicity, Category 2, H361d

Chronic aquatic toxicity, Category 2, H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.

101745

Product name

Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant®  
Cd-3

---

## 2.2 Label elements

### Labelling.(REGULATION (EC) No 1272/2008)

#### Hazard pictograms



#### Signal word

Warning

#### Hazard statements

H302 Harmful if swallowed.

H351 Suspected of causing cancer.

H361d Suspected of damaging the unborn child.

H411 Toxic to aquatic life with long lasting effects.

#### Precautionary statements

##### Prevention

P273 Avoid release to the environment.

##### Response

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

### Reduced labelling (≤125 ml)

#### Hazard pictograms



#### Signal word

Warning

#### Hazard statements

H351 Suspected of causing cancer.

H361d Suspected of damaging the unborn child.

#### Precautionary statements

P308 + P313 IF exposed or concerned: Get medical advice/ attention.



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 101745  
Product name Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant®  
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---

Contains: Thiourea

*Index-No.* 612-082-00-0

## 2.3 Other hazards

None known.

---

## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	H <sub>2</sub> NCSNH <sub>2</sub>	CH <sub>4</sub> N <sub>2</sub> S (Hill)
Index-No.	612-082-00-0	
EC-No.	200-543-5	
Molar mass	76,12 g/mol	

### Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
---------	---------------------	----------------

Thiourea (<= 100 % )

*Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.*

62-56-6	01-2119977062-37-
---------	-------------------

xxxx

Acute toxicity, Category 4, H302

Carcinogenicity, Category 2, H351

Reproductive toxicity, Category 2, H361d

Chronic aquatic toxicity, Category 2, H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 3.2 Mixture

Not applicable

---

## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air. Call in physician.

---

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---

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

#### 4.2 Most important symptoms and effects, both acute and delayed

irritant effects, Diarrhoea, Nausea, Vomiting, Stomach/intestinal disorders

#### 4.3 Indication of any immediate medical attention and special treatment needed

No information available.

---

## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

*Suitable extinguishing media*

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

Sulphur oxides, nitrogen oxides, nitrous gases

### 5.3 Advice for firefighters

*Special protective equipment for firefighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

---

## SECTION 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### 6.2 Environmental precautions

---

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Product name	Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant® Cd-3

---

Do not let product enter drains.

## 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

## 6.4 Reference to other sections

Indications about waste treatment see section 13.

---

## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

#### *Advice on safe handling*

Observe label precautions.

Work under hood. Do not inhale substance/mixture.

#### *Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### 7.2 Conditions for safe storage, including any incompatibilities

#### *Storage conditions*

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorised persons.

Recommended storage temperature see product label.

The data applies to the entire pack.

### 7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

---

## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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Product name Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant®  
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---

## Derived No Effect Level (DNEL)

Worker DNEL, longterm	Long-term systemic effects	dermal	1 mg/m <sup>3</sup>
Worker DNEL, longterm	Long-term systemic effects	inhalation	3,4 mg/kg Body weight
Consumer DNEL, longterm	Long-term systemic effects	dermal	1,7 mg/kg Body weight
Consumer DNEL, longterm	Long-term systemic effects	inhalation	0,2 mg/m <sup>3</sup>
Consumer DNEL, longterm	Long-term systemic effects	oral	0,1 mg/kg Body weight

## Predicted No Effect Concentration (PNEC)

PNEC Fresh water	0,01 mg/l
PNEC Fresh water sediment	0,072 mg/kg
PNEC Marine water	0,001 mg/l
PNEC Marine sediment	0,007 mg/kg
PNEC Sewage treatment plant	0,38 mg/l
PNEC Soil	2,725 mg/kg

## 8.2 Exposure controls

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

### Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	480 min

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 101745  
Product name Cadmium Test Method: photometric 0.002 - 0.500 mg/l Cd Spectroquant®  
Cd-3

---

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

*Other protective equipment*  
protective clothing

*Respiratory protection*

required when dusts are generated.

Recommended Filter type: Filter B-(P3)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Environmental exposure controls**

Do not let product enter drains.

---

## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	solid
Colour	colourless
Odour	odourless
Odour Threshold	Not applicable
pH	6 - 8 at 50 g/l 20 °C
Melting point/range	169 - 173 °C
Boiling point/boiling range	Not applicable, (decomposition)
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable

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Upper explosion limit	Not applicable
Vapour pressure	at 20 °C Not applicable
Relative vapour density	No information available.
Density	1,405 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	137 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: -0,92 (20 °C) OECD Test Guideline 107 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

## 9.2 Other data

Ignition temperature	440 °C Dust
Bulk density	640 kg/m <sup>3</sup>

---

## SECTION 10. Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Risk of explosion with:  
chlorates

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Violent reactions possible with:

acryl aldehyde

Exothermic reaction with:

Nitric acid, hydrogen peroxide, Acrolein, Strong oxidizing agents, Strong acids and strong bases

## 10.4 Conditions to avoid

Strong heating (decomposition).

## 10.5 Incompatible materials

no information available

## 10.6 Hazardous decomposition products

in the event of fire: See section 5.

---

## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### *Acute oral toxicity*

LD50 Rat: 1.750 mg/kg (External MSDS)

Symptoms: Nausea, Vomiting, Diarrhoea, Stomach/intestinal disorders

#### *Acute inhalation toxicity*

Symptoms: Possible damages:, May cause irritation of respiratory tract.

#### *Acute dermal toxicity*

LD50 Rabbit: > 2.800 mg/kg (External MSDS)

#### *Skin irritation*

Rabbit

Result: No irritation

OECD Test Guideline 404

#### *Eye irritation*

Rabbit

Result: slight irritation

OECD Test Guideline 405

#### *Sensitisation*

Sensitisation possible in predisposed persons.

#### *Germ cell mutagenicity*

#### *Genotoxicity in vitro*

Ames test

Result: negative

(External MSDS)

#### *Carcinogenicity*

This information is not available.

#### *Reproductive toxicity*

This information is not available.

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### *Teratogenicity*

This information is not available.

### *CMR effects*

Carcinogenicity:

Suspected of causing cancer.

Teratogenicity:

Suspected of damaging the unborn child.

### *Specific target organ toxicity - single exposure*

This information is not available.

### *Specific target organ toxicity - repeated exposure*

This information is not available.

### *Aspiration hazard*

This information is not available.

## 11.2 Further information

After absorption:

Changes in the blood count

Damage to:

thyroid, Bone marrow

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

---

## SECTION 12. Ecological information

### 12.1 Toxicity

#### *Toxicity to fish*

LC50 Danio rerio (zebra fish): 10.000 mg/l; 96 h (External MSDS)

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 35 mg/l; 48 h (IUCLID)

#### *Toxicity to algae*

IC50 Desmodesmus subspicatus (green algae): 3,8 - 10 mg/l; 72 h (IUCLID)

#### *Toxicity to bacteria*

EC10 Pseudomonas putida: 1.265 mg/l; 18 h (IUCLID)

### 12.2 Persistence and degradability

#### *Biodegradability*

0 %; 34 d

OECD Test Guideline 301C

Not readily biodegradable.

#### *Biochemical Oxygen Demand (BOD)*

13 mg/g (5 d)

(IUCLID)

### 12.3 Bioaccumulative potential



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*Partition coefficient: n-octanol/water*

log Pow: -0,92 (20 °C)

OECD Test Guideline 107

Bioaccumulation is not expected.

## 12.4 Mobility in soil

No information available.

## 12.5 Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

## 12.6 Other adverse effects

Discharge into the environment must be avoided.

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## SECTION 13. Disposal considerations

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 UN number UN 3316  
14.2 Proper shipping name CHEMICAL KIT  
14.3 Class 9  
14.4 Packing group III  
14.5 Environmentally hazardous --  
14.6 Special precautions for user yes  
Tunnel restriction code E

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 UN number UN 3316  
14.2 Proper shipping name CHEMICAL KIT  
14.3 Class 9  
14.4 Packing group III  
14.5 Environmentally hazardous --  
14.6 Special precautions for user no

### Sea transport (IMDG)

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**14.1 UN number** UN 3316  
**14.2 Proper shipping name** CHEMICAL KIT  
**14.3 Class** 9  
**14.4 Packing group** III  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** yes  
**EmS** F-A S-P  
**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

---

## SECTION 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### *EU regulations*

Major Accident Hazard Legislation 96/82/EC  
Dangerous for the environment  
9b  
Quantity 1: 200 t  
Quantity 2: 500 t

SEVESO III  
ENVIRONMENTAL HAZARDS  
E2  
Quantity 1: 200 t  
Quantity 2: 500 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of  $\geq 0.1\%$  (w/w).

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## *National legislation*

Storage class 3

The data applies to the entire pack.

## 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

---

## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H411	Toxic to aquatic life with long lasting effects.

### Training advice

Provide adequate information, instruction and training for operators.

### Labelling

#### *Hazard pictograms*



#### *Signal word*

Warning

#### *Hazard statements*

H302 Harmful if swallowed.  
H351 Suspected of causing cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H411 Toxic to aquatic life with long lasting effects.

#### *Precautionary statements*

Prevention

---

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---

P273 Avoid release to the environment.

Response

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Contains: Thiourea

### **Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

### **Regional representation**

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

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## EXPOSURE SCENARIO 1 (Industrial use)

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### 1. Industrial use (Chemical production)

#### Sectors of end-use

*SU 3* Industrial uses: Uses of substances as such or in preparations at industrial sites  
*SU 10* Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

#### Chemical product category

*PC19* Intermediate

#### Process categories

*PROC3* Use in closed batch process (synthesis or formulation)  
*PROC4* Use in batch and other process (synthesis) where opportunity for exposure arises  
*PROC5* Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)  
*PROC8a* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities  
*PROC8b* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  
*PROC9* Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
*PROC10* Roller application or brushing  
*PROC15* Use as laboratory reagent

#### Environmental Release Categories

*ERC2* Formulation of preparations  
*ERC6a* Industrial use resulting in manufacture of another substance (use of intermediates)  
*ERC6b* Industrial use of reactive processing aids

---

### 2. Contributing scenarios: Operational conditions and risk management measures

#### 2.1 Contributing scenario controlling environmental exposure for: ERC2

##### Amount used

Daily amount per site (Msafe) 3.380 kg

##### Environment factors not influenced by risk management

Dilution Factor (River) 10  
Dilution Factor (Coastal Areas) 100

##### Other given operational conditions affecting environmental exposure

Number of emission days per year 300  
Emission or Release Factor: Air 0,002 %  
Emission or Release Factor: Water 0,001 %  
Emission or Release Factor: Soil 0,01 %

##### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant  
Flow rate of sewage treatment 2.000 m3/d

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plant effluent Sludge Treatment	Can be landfilled, when in compliance with local regulations.
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## 2.2 Contributing scenario controlling environmental exposure for: ERC6a

### Amount used

Daily amount per site (Msafe)	806.000 kg
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### Environment factors not influenced by risk management

Dilution Factor (River)	10
Dilution Factor (Coastal Areas)	100

### Other given operational conditions affecting environmental exposure

Number of emission days per year	300
Emission or Release Factor: Air	0,005 %
Emission or Release Factor: Water	0 %
Emission or Release Factor: Soil	0,1 %

### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent Sludge Treatment	2.000 m3/d  Can be landfilled, when in compliance with local regulations.

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## 2.3 Contributing scenario controlling environmental exposure for: ERC6b

### Amount used

Daily amount per site (Msafe)	676 kg
-------------------------------	--------

### Environment factors not influenced by risk management

Dilution Factor (River)	10
Dilution Factor (Coastal Areas)	100

### Other given operational conditions affecting environmental exposure

Number of emission days per year	20
Emission or Release Factor: Air	0,1 %
Emission or Release Factor: Water	0,05 %
Emission or Release Factor: Soil	0,025 %

### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent Sludge Treatment	2.000 m3/d  Can be landfilled, when in compliance with local regulations.

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## 2.4 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC8b, PROC9, PROC15

### Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, low dustiness

### Frequency and duration of use

Frequency of use	< 8 hours/day
Frequency of use	5 days/week

### Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor activities
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### Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

---

## 2.5 Contributing scenario controlling worker exposure for: PROC5, PROC8a

### Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, low dustiness

### Frequency and duration of use

Frequency of use	< 8 hours/day
Frequency of use	5 days/week

### Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor
------------------	--------

### Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

---

## 2.6 Contributing scenario controlling worker exposure for: PROC10

### Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Solid, low dustiness

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## Frequency and duration of use

Frequency of use < 8 hours/day  
Frequency of use 5 days/week

## Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

## Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

## Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

## 3. Exposure estimation and reference to its source

### Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2		Marine water	1	ECETOC TRA 3
2.2	ERC6a		Marine water	1	ECETOC TRA 3
2.3	ERC6b		Marine water	1	ECETOC TRA 3

### Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC3	longterm, inhalative, systemic	0,1	ECETOC TRA 3
		longterm, dermal, systemic	0,04	ECETOC TRA 3
		longterm, combined, systemic	0,14	
2.4	PROC4	longterm, inhalative, systemic	0,5	ECETOC TRA 3
		longterm, dermal, systemic	0,4	ECETOC TRA 3
		longterm, combined, systemic	0,9	
2.4	PROC8b	longterm, inhalative, systemic	0,1	ECETOC TRA 3
		longterm, dermal, systemic	0,8	ECETOC TRA 3
		longterm, combined, systemic	0,9	
2.4	PROC9	longterm, inhalative, systemic	0,1	ECETOC TRA 3
		longterm, dermal, systemic	0,4	ECETOC TRA 3
		longterm, combined, systemic	0,5	
2.4	PROC15	longterm, inhalative, systemic	0,1	ECETOC TRA 3
		longterm, dermal, systemic	0,02	ECETOC TRA 3
		longterm, combined, systemic	0,12	
2.5	PROC5	longterm, inhalative, systemic	0,5	ECETOC TRA 3
		longterm, dermal, systemic	0,4	ECETOC TRA 3
		longterm, combined, systemic	0,9	
2.5	PROC8a	longterm, inhalative, systemic	0,5	ECETOC TRA 3
		longterm, dermal, systemic	0,4	ECETOC TRA 3
		longterm, combined, systemic	0,9	



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2.6	PROC10	longterm, inhalative, systemic	0,05	ECETOC TRA 3
		longterm, combined, systemic	0,85	ECETOC TRA 3
		longterm, dermal, systemic	0,8	

---

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

For (other) acute and local effects risk management measures are based on qualitative risk characterisation.

---

#### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool SciDeEx® at [www.merckmillipore.com/scideex](http://www.merckmillipore.com/scideex).

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